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Author(s): Archuleta, Alonso

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# Los Alamos National Laboratory: At a Glance

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**Alonso D. Archuleta**

**Research and Development Engineer**

**MET-1: Disassembly and Metal  
Fabrication**

# About Me

- **Born and Raised in Española, New Mexico**
  - 1998 Graduate of Española Valley High School
- **Graduate of The University of New Mexico**
  - Class of 2005, Bachelor of Science, Mechanical Engineering
  - Founding Father Of Omega Delta Phi Fraternity Inc.- Alpha Eta Chapter
- **Graduate of New Mexico Highlands University**
  - Class of 2009, Master's of Business Administration



# About the Laboratory



Los Alamos National Laboratory. File via AP



- Los Alamos National Laboratory (LANL) is a National Nuclear Security Administration (NNSA) Laboratory, managed by Los Alamos National Security (LANS) LLC.
- It is located in Los Alamos, New Mexico approximately 35 miles North of Santa Fe in North Central New Mexico.
- It is one of the largest science and technological institutions in the world; conducting research in fields such as: National Security, Medicine, Nanotechnology, Supercomputing, Space Exploration, and Renewable Energy.
- LANL employs approximately 12,000 people and is the largest employer in Northern New Mexico.

# LANL: A History

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- **Began as the Los Alamos Ranch School for Boys**
  - A boarding school for young men, established in 1917 and specialized in providing pre-college education in and outdoor setting.
- **Los Alamos was established in 1942 as the site for Project Y, more commonly known as The Manhattan Project.**
  - Los Alamos was chosen because of its remote location and its ability to keep the development of the Atomic Bomb a secret.
  - Robert J. Oppenheimer becomes the first laboratory director.
  - Los Alamos became known among locals as “the secret city” and “the hill”
- **In 1943, hundreds of world renowned scientists and Nobel Prize winners arrive at Los Alamos.**
  - Some of these scientists include:
    - Albert Einstein
    - Niels Bohr
    - Edward Teller
    - Enrico Fermi

# LANL: A History Continued....

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## ■ July 16, 1945

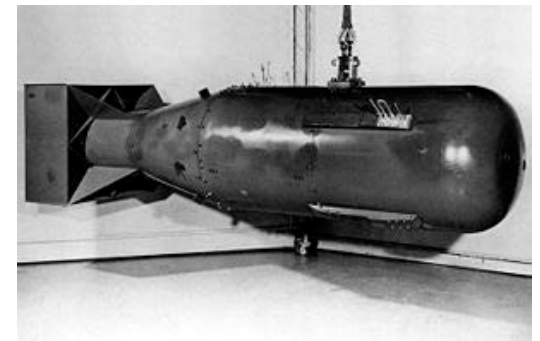
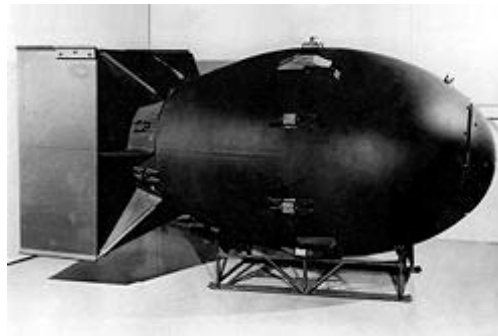
- The First Nuclear Bomb code named “Trinity” is detonated on The White Sands Missile Range, near Alamogordo, New Mexico.

## ■ August 6, 1945

- The “Little Boy” bomb is dropped on the city of Hiroshima, Japan and is the first nuclear weapon used in war.

## ■ August 9, 1945

- The “Fat Man” bomb is dropped on the city of Nagasaki, Japan



# LANL: A History Continued....





# LANL: Present Day

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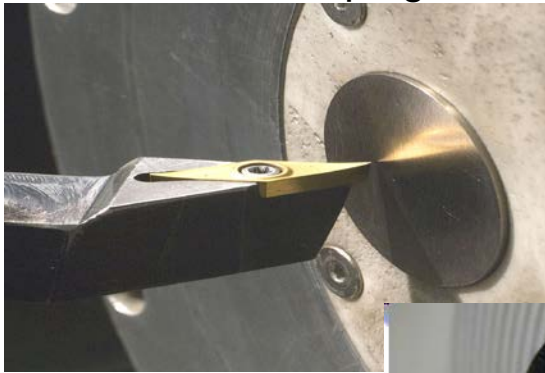
## ■ Some of the Current Projects Performed at LANL

- The Development of a Vaccine to protect against the contraction of HIV and AIDS
  - 1663 Magazine January 2012
- Creating Clean Energy Using Nuclear Power
  - National Security Science, February 2012
- Using Algae Instead of Oil for Fuel
  - Why Magazine, November 2011
- Charged Particle Radiography
  - The usage of proton and muons for x-ray photographs and movies



# What Do I DO?

- **Mechanical Engineer for the Disassembly and Metal Fabrication Team**
  - Involves work with Machining components for use in Plutonium Science Programs
  - Providing technical expertise in the assembly of Sub-Critical Experiments at TA-55, and the Nevada National Security Site.
  - Developing and maintaining Equipment for use in Glovebox Environments



# Pollux Sub-Critical Experiment

- <https://www.youtube.com/watch?v=9acompDlu7w>



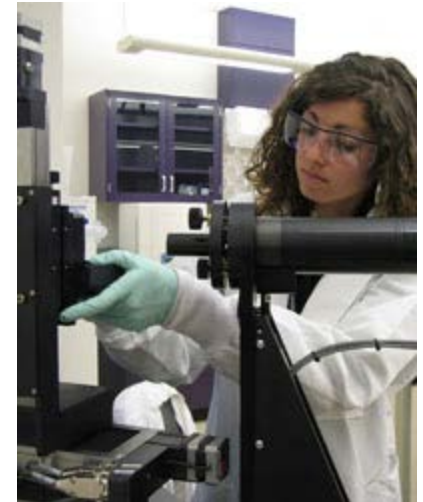
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# What Can LANL Offer You?

## ■ LANL Has Several College Student Programs Available

- Undergraduate Student Program
- Graduate Research Assistant Program



# Undergraduate Student Program

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- **The Undergraduate Student (UGS) Program offers summer and year-round internships for undergraduate students.**
- **The program is an educational program that provides students with relevant research experience while they are pursuing an undergraduate degree.**
- **This educational program is designed to complement the student's education with work experience related to their chosen field of study. There are internships in both the technical and administrative fields.**
- **Students have the option of joining the Post-Baccalaureate Program upon the completion of their respective degree.**
  - This program is a one year appointment at the laboratory where the student will have a salary with full benefits until they enter Graduate School.

# Undergraduate Student Program

## ■ Requirements:

- Provide documentation of acceptance into an undergraduate academic program,
- Enroll in and successfully complete a minimum of 12 credit hours per semester in an accredited college or university degree program, and
- Initially have and maintain a cumulative 3.0/4.0 GPA.
- Maximum of 6 years is allowed for the completion of a degree.

## Salary Structure

|                    |   | Administrative |         | Technical |         |
|--------------------|---|----------------|---------|-----------|---------|
| HS+0               | Completion of HS Diploma and College Acceptance           | \$20,900       | \$10.05 | \$20,900  | \$10.05 |
| HS+1               | Completion of 24 semester hours                           | \$24,560       | \$11.81 | \$24,560  | \$11.81 |
| HS+2               | Completion of a minimum of 48 semester hours              | \$27,540       | \$13.24 | \$29,180  | \$14.03 |
| HS+3               | Completion of a minimum of 72 semester hours              | \$31,110       | \$14.96 | \$34,990  | \$16.82 |
| HS+4               | Completion of a minimum of 96 semester hours              | \$34,780       | \$16.72 | \$41,770  | \$20.08 |
| Post Baccalaureate | Bachelor's Degree awarded (Limited to 1-year appointment) | \$38,440       | \$18.48 | \$44,570  | \$21.43 |



# Graduate Research Assistant Program

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- **The Graduate Research Assistant (GRA) Program is a year-round educational program that provides students with relevant research experience while pursuing a graduate degree. In some cases, students can arrange to conduct master's or doctoral thesis research at the Laboratory.**
- **The majority of internships are in the technical and scientific disciplines. Appointments are available for 90 days up to one year, with option for renewal based upon program requirements.**
- **Students are selected on the basis of field of study, grade point average, and research interests. Individuals may remain in the GRA program for up to three months after receiving a Ph.D.**

# Graduate Research Assistant Program

## ■ Requirements

- Provide documentation of acceptance in a graduate program,
- Enroll in and successfully complete a minimum of 6 graduate credit hours per semester, and
- Initially have and maintain a cumulative 3.2/4.0 GPA
- Maximum Time Limits:

| Programmatic Time Limits                                     |         |
|--|---------|
| with a bachelor's pursuing a master's degree                 | 4 years |
| with a bachelor's pursuing a Ph.D.                           | 7 years |
| with a master's pursuing a second master's degree            | 2 years |
| with a master's pursuing a Ph.D.                             | 4 years |
| with a master's pursuing a master's and Ph.D. in a new field | 6 years |



# Graduate Research Assistant Program

## ■ Salary Structure

|                     |  | Administrative |         | Technical |         |
|---------------------|--|----------------|---------|-----------|---------|
| BS+0                | Bachelor's Degree awarded, accepted/enrolled in graduate program   | \$40,150       | \$19.30 | \$47,280  | \$22.73 |
| BS+1                | Completion of a minimum of 12 credit hours of graduate course work   | \$43,050       | \$20.70 | \$49,995  | \$24.03 |
| BS+2                | Completion of a minimum of two academic years and 24 credit hours (salary cap for students pursuing a Master's Degree)                         | \$45,600       | \$21.92 | \$53,160  | \$25.56 |
| <b>Post Masters</b> | Master's Degree awarded (Limited to a 1-year appointment)  | \$48,760       | \$23.44 | \$56,100  | \$26.97 |
| BS+3 or MS+0        | Master's Degree awarded & accepted and enrolled in a doctorate program   | \$48,760       | \$23.44 | \$56,100  | \$26.97 |
| BS+4 or MS+1        | Satisfactory progress toward Doctoral Degree (e.g., dissertation/thesis workhr. minimum credit per semester)                                   | \$51,070       | \$24.55 | \$59,030  | \$28.38 |
| BS+5 or MS+2        | Satisfactory progress toward Doctoral Degree (e.g., dissertation/thesis work -1 hr. minimum credit per semester) (Salary cap for PhD students) | \$53,170       | \$25.56 | \$61,990  | \$29.80 |

# Student Programs

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## ■ How To Apply

- Complete the Online Application:
- <http://jobs.lanl.gov>
- Online résumé's are accepted year-round and will be kept on file for one year from date of receipt. However, to be considered for summer employment, please submit your online application by February 1.

## ■ Contacts

- Brenda Montoya – Undergraduate and Graduate Programs Coordinator
  - [bmontoya@lanl.gov](mailto:bmontoya@lanl.gov) (505) 667-4866
- Los Alamos National Laboratory Student Association
  - [www.lanl.gov/students](http://www.lanl.gov/students)

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# Questions???